SEYCHELLES

ANNUAL REPORT

OF THE

AGRICULTURAL DEPARTMENT

FOR THE YEAR

1957

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Introduction

Copra prices were still highly remunerative during the year but yields from many estates remained at a low level. The market for cinnamon leaf oil worsened but bark prices remained firm. Good crops of vanilla were harvested and the continued good prices resulted in many new plantings being made.

Policy of the Department

The formal unvarying policy of the Department may be summed up as the practise and encouragement of optimum long-term use of the land and its products, and of other natural resources, in the best interests of the population. In detail, this involves more than can be set out here but the following are major aspects ;

1. The encouragement and betterment of coconut cultivation on all, or most, land to which the crop is suited.

2. The encouragement and betterment of subsidiary export-crop cultivation.

3. The encouragement and betterment of food-crop cultivation on all, or most holdings in order that cultivators may be saved from the worst effects of a slump in the value of export crops, and to reduce food importation.

4. The encouragement and betterment of local processing.

5. The encouragement and betterment of fisheries.

6. The establishment of forest reserves, their re-afforestation, and the obtaining of a sustained yield from them.

7. The up-grading of livestock and the encouragement of cattle, pigs, and poultry keeping for increased fertility and profit.

8. Encouragement and active assistance in the rehabilitation of eroded land and and other unproductive areas.

Progress achieved in 1957

The most worth-while policy achievements in 1957 included the acceptance for Colonial Development and Welfare grant of a scheme for the division of some 500 acres of Crown Land into leasehold smallholdings (under a Settlement Officer to be engaged for the purpose) and the acceptance in principle of the need for a well-staffed Colony-wide coconut rehabilitation scheme. In the field, the conclusion of the first round of inspection and treatment, in Praslin, of coconut palms infested with *Melittomma insulare*, the completely successful biological control of citrus black fly, and the success of the Forester's policy of mulching newly planted areas are specially worthy of mention.

Weather

Although total rainfall slightly exceeded the average the months of July, August, and September were unusually dry. The following table was kindly supplied by the local office of the East African Meteorological Department.

Rainfall and Air Temperature, Victoria

1957 Month	Rainfall (inches)	Air Temperature (Fahrenheit) Mean Max.	Mean Min.	Highest Max.	Lowest Min.	Average Rainfall for 54 ~~days~~ years
January	13.89	84.1	75.8	86.2	72.7	14.64
February	13.68	84.2	76.3	86.6	73.1	10.15
March	3.93	87.4	77.2	90.2	75.0	8.69
April	4.76	88.2	78.1	91.0	75.4	7.47
May	6.81	86.5	77.2	88.9	73.6	6.78
June	7.37	83.9	76.6	87.7	72.5	3.70
July	1.20	82.3	75.1	84.5	71.8	3.39
August	0.81	81.4	75.5	85.5	72.8	2.62
September	0.96	82.0	75.7	85.7	70.8	5.37
October	17.13	—	75.5	—	72.0	6.20
November	5.58	84.0	76.4	87.3	73.7	8.65
December	17.96	84.7	76.0	88.0	73.6	13.21
Total :	94.08	—	76.3	—	—	90.87

Total Rainfall in 1957 at Recording Stations

Mahé, Victoria	94.08 inches (at Port Office)
Mahé, Mont D'or	120.87 inches (at 1,000 feet above sea level)
Mahé, Grand'Anse	126.98 inches (at sea level)
Praslin	80.39 inches (at sea level)
La Digue	67.75 inches (at sea level)

SECTION I

Agriculture, Fisheries & Forestry in the Colony

A. Crop Husbandry

1. *Coconuts*

Production of copra for export increased slightly to 6,000 tons. As previously, all copra was sold by the Seychelles Copra Association. Prices realised were from £70.17.6 per ton f.o.b. in the early part of the year to £60.15.0 during the latter part. The average price was £64.19.8, The local selling price ranged from Rs. 805 per ton in January to Rs. 685 in December, compared with Rs. 686 to Rs. 805 in 1956. The Association's cess remained at Rs. 2 per ton but the Export Duty was increased to 9% on removal of the Price Stabilisation Fund cess. All exports were to India.

Supplies of oil, poonac and soap met the demand. The two coir factories continued to produce small quantities of fibre and cordage for local use.

Infestations by scales and long-tailed mealy bug, with resultant severe fumagine, were observed on several coral islands. Losses from *Melittomma* and *Oryctes monoceros* continued but an outbreak of the former on La Digue was, it is hoped, controlled by prompt reporting and treatment.

Reference to the work of the Department will be found in Section II.

Production for Export, and actual Export, 1953 — 57

Year	Production (Metric Tons)	Value f.o.b.	Export (Metric Tons)	Value f.o.b.
		Rs.		Rs.
1953	6,054	6,025,730	7,398	7,015,504
1954	6,472	6,579,419	5,883	6,024,205
1955	5,846	4,730,530	6,313	5,190,018
1956	5,738	4,783,333	5,579	4,589,233
1957	6,000	5,257,398	5,900	5,176,198

14,000 coconuts with an f.o.b. value of Rs. 1,400 were exported.

2. *Cinnamon*

Exports of cinnamon leaf oil fell to little more than half the figure for recent years as the result of the low price and demand in overseas markets. The system of marketing was changed, at the request of elected members of Legislative Council, the sole agency system for the Colony's production being discontinued and a (limited) number of agents appointed. No improvement in the level of prices or the volume of sales resulted.

Cinnamon bark exports were higher than the previous year and prices continued to range up to Rs. 400 per ton f. o. b. Freight on this bulky product is a serious handicap. Higher density packing may be one solution, another possibility being the export of the more high-valued quills & quillings, rather than the unscraped, unwashed, often unsifted, "chips" which are the principal export at present.

Quill exports increased to 8¼ tons, with a declared f. o. b. value of Rs. 35,000. Sales in London appear to have been made within the range 3/6 to 5/— per lb., Thinner bark, tighter rolling, and a more attractive finish than achieved, so far, by most Seychelles producers are required to obtain the highest price. Whether such highest quality quills can (or should) ever be produced by Seychelles is doubtful but for producers to "set their sights" on this quality is thought to be useful at present as the difference in the cost of manufacturing quills of high and of moderate quality is slight.

Reference to the Work of the Department will be found in Section II.

Cinnamon Leaf Oil Exports 1953 — 57

Year	Quantity in tons	Value in Rupees f. o. b.
1953	99	1,045,989
1954	99	1,388,294
1955	85	910,997
1956	95	899,494
1957	58	555,313

Cinnamon Bark Exports 1953 — 57

Year	Quantity (metric tons)	Value in Rupees f. o. b.
1953	516	201,248
1954	475	217,433
1955	415	167,667
1956	586	251,665
1957	596	268,430

3. *Patchouli*

There was some recovery in oil exports but exports of dried leaf declined slightly. The overall increased interest was probably a reaction to the decline in cinnamon leaf oil prices during the last few years. Oil sold locally at around Rs. 30—35 per kg. and leaf at around Rs. 1,000 per ton.

Patchouli Leaf and Oil Exports 1953 — 57

Year	Oil Exports		Leaf Exports	
	Kilogrammes	Rupees f. o. b.	Tons	Rupees f. o. b.
1953	2,016	114,107	53	—
1954	273	18,514	67	270,666
1955	436	34,491	38	141,200
1956	532	27,225	9	16,013
1957	1,200	50,450	7½	14,789

4. *Vanilla*

Overseas auction prices remained satisfactory at from 45 shillings to 50 shillings per pound. Local selling prices for prepared "beans" ranged from Rs. 32 to Rs. 40 per kilogramme. In this connection it should be noted that in the Annual Report for 1956 the local selling price was incorrectly quoted and should read Rs. 30 to Rs. 40 per kilogramme, The increased value of vanilla in recent years (local selling prices ranged from only Rs. 14 per kilogramme as recently as 1953) stimulated both new plantings and better care of existing ones — and probably almost every available cutting was planted in 1957. The revival of interest in vanilla growing in Mahé was especially noticeable. According to records the crop was formerly widely grown in this island but was abandoned due to disease and the centre of cultivation then shifted to the (drier) islands of Praslin and La Digue. No reports of any diseased plantations were received during the year. The work of the Department is referred to in Section II.

Export of Vanilla 1953 — 57

Year	Quantity Kgs.	Values Rs.
1953	5,642	133,808
1954	1,370	62,000
1955	522	16,380
1956	7,580	285,615
1957	4,245	195,182

5. *Other Crops*

A few nutmegs, cloves, and coco-de-mer nuts and a small quantity of *Eucalyptus citriodora* oil were exported. Apart from this "other crops' were grown solely for local consumption and included the usual range of tropical, sub-tropical and, to a much smaller extent, temperate climate, foodcrops. Coffee and citrus, in the few instances where they are well tended, bore good crops. Tobacco continued to be popular.

Recorded Exports

	Quantity	f. o. b. Value Rs.
Coco-de-mer	1,485 nuts	3,059
Nutmegs	156 kgs.	750
Cloves	113 kgs.	500
Eucalyptus citriodora oil	45 kgs.	300

B. Animal Husbandry

Livestock

No epidemics or serious losses occurred and no increased interest in the keeping of livestock can be reported. Though to be regretted, this is understandable owing to the availability of fish and the very low purchasing power of the majority of the population. A family with one wage-earner, employed on a plantation, cannot afford to purchase meat except on very rare occasions. The purchasing power of the few hundred better-off families who consume meat regularly cannot, obviously, compensate. A more even spread off purchasing power could have a profound effect on animal husbandry, especially if associated with increased fish exports and local milling of copra (for livestock feed). Cattle, pigs, goats, ducks, fowls, guinea-fowl, and even a few turkeys, geese, and donkeys are kept but the numbers are small and hence animal manure is always scarce.

C. Fisheries and Sundry Marine Produce

1. *Fish.*

There were fewer reports during the year of the activities of Japanese tunny long-liners, but to what extent this means that fishing by these vessels in the area has been reduced could not be ascertained.

No cold store operated during the year. Export of dry salted fish, shark, and shark-fins fell by 25%. The explanation given by those engaged in the trade was "smaller catches due to unfavourable weather".

Exports of Dry-Salted Fish (including Shark & Shark-fins) 1953 — 57

Year	Metric Tons	f. o. b. (Value Rupees)
1953	97	57,866
1954	90	81,247
1955	189	159,231
1956	240	213,103
1957	183½	169,669

2. *Green Turtles*

Turtles, chiefly from Aldabra, were usually on sale in Victoria. The calipee from these, and from the reptiles slaughtered on outlying islands, was a profitable export product selling locally at around Rs. 20 per kilogramme. The tonnage of calipee and other cartilage reported by Customs as having been exported indicated, with due allowance for the fact that high prices have encouraged the preparation of the maximum possible weight of calipee and other dried cartilage from the carcases of both Green and Hawksbill turtles, that the slaughter of green turtles had reached the highest figure for many years. The recorded export of calipee and calipash totalled 5,363 kgs. and had a declared f. o. b. value of Rs. 110,650. The recorded total of green turtles landed at Victoria in 1957 was 506.

3. *Beche-de-mer*

There was a revival in the market and a total of 850 kgs., chiefly from Platte Island and valued at Rs. 2,800 f. o. b., were exported.

4. *Sea Shells*

The overseas demand for *Turbo*, oyster, and other shells declined during the year and although 29 tons with a declared f. o. b. value of Rs. 55,975 were exported it is believed that some consignments were unprofitable.

5. *Hawksbill Turtles*

Tortoiseshell from the Hawksbill turtle was in slightly greater demand overseas than in recent years and 825 kgs. with a declared f. o. b. value of Rs. 4,591 were exported. Cartilage was also prepared but the records of calipee and calipash exports supplied by Customs do not show whether any made from Hawksbills actually left the Colony.

D. Minerals

6,234 tons of guano and phosphatic rock with a declared f. o. b. value of Rs. 239,949 were exported from the leased Crown guano islands.

E. Zoological Specimens and Sea Birds and their Eggs

1. *Giant Tortoises*

The export of 33 specimens of the Giant Tortoises with a total declared f. o. b. value of Rs. 1,805 but a very much higher sale price at destination, was permitted.

2. *Sea Birds and their Eggs*

The collection and local consumption of the nestlings of Wedge-tail Shearwaters and of the eggs of Sooty Tern and Common Noddy continued. No records of actual collections are available but the declared landings of eggs from islands were as follows :—

Island	*Sooty Tern's Eggs*	*Common Noddy Eggs*	*Unspecified*	*Total*
Recif	15 cases	6 cases	—	21 cases
Desnoeufs	1,650 ,,	—	—	1,650 ,,

Island	*Scoty Tern's Eggs*	*Common Noddy Eggs*	*Unspecified*	*Total*
N. Cousin	Nil	Nil	Nil	Nil
Aride	198½ ,,	—	—	198½ cases
Bird	Nil	Nil	Nil	Nil
Farquhar	Nil	Nil	Nil	Nil
Frigate & Ilot Frigate	—	—	32 cases	32 ,,
	1,863½ cases	6 cases	32 cases	1,901½ cases

It can be assumed that each case contained an average of 650 eggs. There were reports of many additional cases of eggs being stolen by "moonlight raiders" and island "guardians". Eggs sold in Mahe at around 5 cents each.

F. Forestry

No reports of any notable efforts by the public to improve, or increase the area of, their plantations were reported.

G. Pests, Diseases and Vermin

As nearly all the pests, diseases, and vermin which caused real concern were the subject of work by the Department reference should be made to Section II., where work on control measures is referred to. The exceptions were Longicorn timber borers and wood-consuming termites, which, though serious, were not the subject of attempted control.

SECTION II

The Work of the Department of Agriculture

Owing to the departure of the Agricultural Officer on further training, the transfer of the Forester, and the unavoidable delay in their replacement and in the appointment of a Settlement Officer the remaining technical staff were overburdened with routine duties and had little time to devote to work in the interests of the public. Timber-sawing was stopped on the Forester's departure, as were in the second half of the year, commercial-style cinnamon leaf-oil distillation and Bacca brewing.

Not alone among Colonies with similar histories and populations Seychelles has to face the problem of very widespread petty dishonesty. It is stated, by responsible planters, that under existing conditions a loss by theft of at least 10% of the estate produce must be accepted as inevitable. Governments, quite rightly, can seldom accept *any* loss of public property as being inevitable — and hence the Department is engaged in a time-consuming battle to minimise losses and fix responsibility for those which occur. This battle is or should be, fought, in the plantations but much ink is spilt in the process and of the over 4,500 incoming and outgoing headquarters letters and memoranda in 1957 a great many were concerned with losses ranging from the demise of baby tortoises to more serious matters such as the payment of considerable sums to sawyers for apparently non-existent planks.

1. *Crown Lands*

The area of Crown land remained unchanged at a "reputed" 15,000 acres, of which rather more than half is leased and the remainder operated from 16 stations ranging in size from 1 – man guardian posts to those such as Grand'Anse and Union Vale, where around a hundred men and women are employed.

(a) *Direct Production on Crown Lands*

Coconuts : Coconut stealing was reported from all twelve areas where the Department still operates land planted with this crop, in some instances there being clear evidence of the nuts having been stripped from the trees before maturity. Although nuts are on sale at a concession price to employees few are purchased and much theft was undoubtedly by, or with the connivance of, the labour force. Families totalling well over 2,000 men, women, and children are supported by Agricultural Department and coconuts, or oil made from them are a daily item of the diet of every Seychellois. As the daily wage of the "breadwinner" in many a family of four or five does not amount to more than the value of 4 lbs. of rice the temptation to take a nut or two every day must be considerable. To check theft of this type is very difficult. On one area a tree-by-tree estimation revealed that out of an estimated annual yield of 21,558 nuts from 778 palms only 5,475 nuts per annum reach the store. Though other factors (such as errors in estimation, losses due to rats, &c.) are involved these figures indicate that theft is taking place on a very serious scale and probably accounted for 50% of the crop in certain areas, especially where lack of work for women resulted from the depression of the cinnamon industry.

The entire coconut area of Grand'Anse Estate continued to be treated for *Melittomma insulare* and during the course of this work all trees with formed trunks (infested or otherwise) have been numbered and crop-estimated. A total of 4,886 trees had been dealt with by the year's end and the work is likely to be completed by mid-1958. Nut collection was re-organised to correspond with the numbering, so facilitating observation of fluctuations in nut collections. That part of the hillside area of the estate which is sparsely planted with coconuts and is doubtfully economic for this crop but which carries a fair cover of cinnamon was cleaned during the year. The coastal portion of the estate where coconuts are productive and the land can be easily grazed was kept free from cinnamon and scrub.

Cleaning was continuous on St. Anne and Curieuse islands and on Foret Noire and Union Vale estates. At Anse Boileau the entire remaining coconut area was in course of conversion to leasehold smallholdings and little expenditure on cleaning was therefore incurred. It has been the policy while decisions were awaited regarding the leasing of much of these lands for no gapping-up or new planting to be carried out as such would not have coincided with the urgent need for smallholders to diversify their crop. Likewise, as regards the coconuts on the coastal area of Grand'Anse intended for retention, a replanting or gapping-up policy has been postponed pending control of *Melittomma insulare* by existing, or better, methods and the planning of Colony-wide Coconut Development Scheme.

The deficiency of rain in 1956, the continuing damage caused by *Melittomma insulare*, the lease in late 1956 of some 40 acres of smallholdings partially planted with coconuts, the decision to lease the whole

remaining area of Anse Boileau estate and a large part of Grand'Anse Estate as smallholdings and serious losses due to theft all had an adverse effect on the Crown land coconut collection figures for 1957.

Collection & Disposal of Coconuts from Unleased Crown Lands

Origin	*Nuts Collected*
Grand'Anse	225,083
Anse Boileau	270,863
Foret Noire	117,695
Union Vale	41,699
St. Anne Island	222,061
Minor Mahe Crown Lands	19,115
Curieuse Island	142,881 *
Long Island	9,260
Praslin Crown Lands	8,396
	1,057,053

* Including 31,807 nuts from Leper Settlement.

Disposal of Nuts

Stock 1.1.57	20,169	Converted into Copra	788,677
Collection 1957	1,057,053	Sold & free issues	263,341
		Bad nuts	3.568
		Stock 31.12.57	21,636
	1,077,222		1,077,222

Copra Production & Disposal

Stock 1.1.57	3,671	Consigned for Export	111,706	kgs.
Production 1957	116,545	,, ,, Milling	2,163	,,
		Sold by Tender (2nd. grade)	1,626	,,
		Write off	131	,,
		Stock 31.12.57	4,590	,,
	120,216		120,216	,,

Conversion Rates

	Average number of nuts per ton of Copra
Grand'Anse	5,972
Anse Boileau	7,100
Foret Noire	7,474
Curieuse Island	8,414

Cinnamons : Apart from operations at the Central Distillery (opened for unemployment relief in Victoria), and the production of quills for overseas grading report, all Crown land cinnamon was sold by tender. The average yield of oil per ton of leaf at the Central Distillery was 9.2 kgs.

Cinnamon leaf oil	2,111 kgs. distilled from 229½ tons of leaves
Cinnamon leaves	717 tons sold by tender
Undried cinnamon bark	131 tons sold by tender
Dried cinnamon bark	14 tons prepared at Central Distillery

Sugarcane : In 1956 the Victoria Bacca Club purchased only 84 tons of cane and much Crown land cane was unsold. In 1957 an increase in the toddy tapping licence fee and other factors resulted in a sudden increase in the Club's demand for cane, which could not be met in full from the area of cane remaining after the late 1956 leases of land for smallholdings at Foret Noire. Sales of cane to the Victoria Club in 1957 totalled 127 tons and 41 tons were milled at Grand'Anse for Departmental retailing of the fermented juice during the first half of the year.

Foodcrops : Department production was restricted to that from the Sans Soucis garden, citrus plots, breadfruit trees, and the "palmiste" resulting from fellings of untreatable *Melittomma*-infested trees. Much of the breadfruit was used for cattle fodder, the other crops being supplied to Government institutions.

Livestock : See Section II (3)
Forestry : See Section II (2)

(b) *Gardens and Sports Grounds*

The Department supervised upkeep of the Botanical gardens, Government House grounds, Fiennes Esplanade, and Gordon Square and supplied labour to the Hospital for work on the garden there. Special displays were arranged for visitors from the cruise-ship "Caronia".

(c) *Demonstration areas on Crown land*

Union Vale Estate (dairy herd, clean milk production, silage pits, elephant and paspalum grass, and maize, on terraces, cattle dipping, Large White pigs, R. I. R. and other poultry) and the market gardens operated by the Senior Forest Ranger and the Manager of Grand'Anse, and the Sans Soucis vegetable gardens, continued as useful demonstration areas, as did some, but not all, aspects of Grand'Anse Estates. The Sans Soucis vegetable garden was bench-terraced throughout and a composting shed installed.

(d) *Leased Crownlands*

Only until the departure of the Agricultural Officer, whose duty it was to visit all the tennants of smallholding on Crownland, was the regular provision of advice and the enforcement of terms of lease possible. Thereafter, visits had to be infrequent and far too brief and no new leases were possible. Three tenants of holdings where the permanent crops at time of lease were insufficient to pay the rent relinquished their tenancies during the year. The tenancy of one smallholder who had been convicted of theft was terminated. A certain "wastage" of tenants must always be expected as even the most careful screening of applicants cannot eliminate all those who will prove incapable. There was a waiting list of over 60 applicants for smallholdings at the year's end and assuming that a Settlement Officer is appointed early in 1958 it should be possible to place the most suitable of them during the second half of the year or in early 1959.

Approval for expenditure of C. D. & W. funds on the bench-terracing of Crownlands prior to leasing, for the building of tenants' houses, for the setting up of a demonstration smallholding and for a modest programme of trials of smallholding crops was received mid-year but though a start was made with bench-terracing little more could be done until the appointment of a Settlement Officer. It was, however, possible to have a sample house built by the Public Works Department (to their design) and thus confirm their estimates that future tenants could be provided with a two-roomed dwelling, simple outside kitchen, and "aquaprivy" for around Rs. 3,000. Records showed that even after the revision of labourers' wages in the latter part of the year the total cost of bench terracing (including clearance of cinnamon or light scrub) could usually be kept below Rs. 1,000 per acre of finished terracing.

Of the larger Crown leaseholds Aldabra and Cosmoledo Atolls, Assumption, Marie-Louise (in the Amirantes Group) the leased portion of St. Anne island and Round islands were inspected during the year by senior staff.

2. *Forestry*

General

The departure in October of the Forester made it necessary to stop all exploitation and planting pending the arrival of his replacement. However, a total of 127¾ acres were planted before his departure and during the last three months of the year the Senior Forest Ranger put his labour on cleaning, mulching, and thinning.

The mulching commenced in 1956 was extended to most areas and the beneficial effect in young plantations on poor soil was so striking that it seems probable that wherever material can be obtained within a reasonable distance mulching rather than hoeing will be the preferred method of controlling *Panicum parvifolium* which, unless checked by one means or another, will choke young trees in a few months. Although the *Panicum* often grows through the mulch it is then easily and cheaply cut with a bush-knife and, being unable to take fresh root on top of the mulch, adds to the useful layer of organic matter. Most of the re-afforested areas on Mahe are interspersed with precipitous or rocky areas clothed with scrub and fern, or with self-sown cinnamon and fern, and it is from these areas that mulching material (largely fern) is cut. Such a method of "robbing Peter to pay Paul" could not, of course, be continued indefinitely but is entirely logical as a means of establishing young plantations and as regards the cinnamon areas the clearance of fern is beneficial.

No fires occurred on re-afforested areas, though one at "Dans Cephale" (Béolière) which appears to have started from a foot-path burnt an estimated 60 acres of precipitous scrub-clothed mountain side before being stopped by an all-night fire-fighting gang from entering one of the young forests. Other areas of scrub adjoining the work in progress on the new trans-island road were fired at intervals during the year, presumably as the result of glowing fuses &c. thrown out during blasting operations.

Some saleable poles and cordwood were cut from re-afforested areas during thinning operations.

Contour colonisation pits at Newcombe, Praslin, were extented to some five acres. *Chrysobalanus icaco* (Coco-plum), which is an almost industructible native, was the main choice as a pioneer but *Calophyllum inophyllum* (Takamaka) was also tried. Results are slow but en-

couraging and as mulching material is rare in this area it is probably largely by the method used or, of course, by the more expensive full-scale terracing, that the large expense of infertile eroded uplands in Praslin can be stabilised and covered.

New introductions during the year, for trial, were *Lagerstroemia hypoleuca*, two species of Terminalia, and 7 species of *Pinus*. These, together with the introductions from former years which have been retained for further trial, will be reported on next year after the new Forester expected in 1958 has had time to study them.

Vanilla Plots

Useful information is being assembled from the observation plots of vanilla in re-afforested areas. Young takamaka, casuarina, and sang-dragon plantations appear to be best suited to the crop. It is found to be essential to have the base of the vanilla well mulched. The type of mulch appears to be immaterial. A good deal of work is required in pruning and thinning and success or failure of the crop in a young forest is likely to depend, as much as anything, on the skill with which this shade-control is carried out. Such skill must be a combination of that of the forester and of the experienced grower of vanilla. Where young forest trees do not happen to have a suitable branch over which the "porteur" can be bent (an essential sap-restricting procedure to induce flowering) it has been found that a small peg of the rot and termite resistant wood "Capuchin", driven lightly into a small boring in the trunk, makes a suitable harmless substitute. Over 5,000 flowers were pollinated in the plots.

Acreage & Species Planted during 1957

	Sans Souci	Grand' Anse	Le Niol	Newcombe Praslin
	acres	acres	acres	acres
Central American Mahogany Swietenia macrophylla	2	—	—	—
M'Vuli Chlorophora excelsa	1	—	—	—
Balsa Ochroma lagopus	½	—	—	—
Bois de Natte Mimusops sp.	½	—	—	—
Takamaka Calophyllum inophyllum	25	21¾	10¾	—
Calice du Pape Tecoma leucoxylon	25	7	—	—
M'Lanji Cypress Widdringtonia whytei	3	½	—	—
Santol Sandoricum indicum	22	4	—	—
Sandragon Pterocarpus indicus	5	—	—	—
	84	33	10¾	—

Total 127¾ acres.

Summary of Forest Produce 1957

Timber (running feet)

Species	Planks	Madriers	Beams	Posts	Rafters	Rondins
Albizzia	26,011	32,807	—	—	—	—
Eucalyptus	—	5,002	1,290	200	433 units	—
Santol	8,767	7,200	—	—	—	—
Breadfruit	825	—	—	—	—	—
Agati	18,875	8,738	—	—	—	—
Takamaka	1,425	198	—	—	—	27
Badamier	3,332	—	—	—	—	—
Tamarind	620	—	—	—	—	—
Calice du Pape	—	—	—	2,098	—	—
Cedar	520	—	—	271	64 units	—
Bois Noir	—	270	—	—	—	—
Sandragon	303	78	—	—	—	—
Capuchin	—	—	—	136	—	—
Mixed timbers	—	—	—	—	—	—
Grand Total	60,678	54,293	1,290	2,705	479	27

Other Forest Produce

Cordwood	823 cords
Capuchin Charcoal	1,586 tins (by Departmental labour)
Ordinary charcoal	731 tins (,, ,, ,,)

All sawn timber was produced by piece-workers employed by the Department, the Forester (Mr. E. Brewer) and his staff supervising, as formerly, all conversion and disposal.

3. *Veterinary Work and Livestock*

The Stock Inspector, Mr. Donald Morgan, was available to the public for advice and veterinary treatment so far as his supervisory and other duties permitted.

Veterinary and Quarantine Work

The clinic at Union Vale was operated as usual, charging nominal fees or giving free treatment where owners were certified as being unable to pay. The Stock Inspector, who has not had the training of a veterinarian, to a very large extent performed the duties of one. In addition to minor dressings he carried out :

Clinical examinations	420
Burdizzo castrations	13
Open methed castrations	26
Fowl-pox vaccinations	250
Smears	6
Faecal examinations	35
Ovariotomy (cats & bitches)	3
Other minor operations	15

An epidemic of canine distemper caused the death of a large proportion of the Colony's dogs. Whether this epidemic was a flare up of the endemic and comparatively mild form of distemper/hard-pad which has occurred in the Colony for some ten years or whether a new infection reached the Colony with a legally or illegally imported animal could not be determined. The majority of dog-owners in the Colony were unable to afford expensive specifics but many were assisted with simple drugs and advice. For those able to afford them, the Seychelles Branch of the R.S.P.C.A. financed the import of vaccines and anti-sera, which were administered by the Stock Inspector. This action by the Branch was greatly appreciated by the Department and by all those in a position to benefit. The Branch also very kindly presented to the Department's clinic a much-needed refrigerator for the storage of biological products and other items needing cool storage.

The visit (on leave) of Mr. A. J. Wiley of the Kenya Department of Veterinary Services was much appreciated as in addition to making a study of the Colony's ticks he very kindly identified, and assisted in the control of, an outbreak (resulting in the death of 4 calves) of bovine coccidiosis and also helped with other diagnosis and control measures, in consultation with his colleagues overseas.

28 head of poultry and 3 rabbits entered quarantine. 34 land tortoises and 2 dogs were inspected prior to export.

Stock and Husbandry Improvement Work

The following were sold to the public from the Department's herds, which totalled 211 head at the year's end.

24 heifers	(largely SindhiXFriesian)	By Auction
3 bulls	(Sindhi)	
24 piglets	(Large White)	
26 pullets	(R.I.R.'s Cross)	

58½doz. R.I.R. and cross eggs for hatching (at a fixed price). Stud bulls served 80 privately-owned cattle. 24 pure-bred Rhode Island Red pullets and 4 cockerels were purchased from East Africa as breeding stock and did well.

The new silage pit at Grand'Anse was filled, and as has invariably been the case since the making of pit-silage by the Department was started, the product was perfect.

540 gallons of diluted toxaphene insecticide (for buffalo fly control) were sold, as were mineral supplements, dairy disinfectants and a number of other sundries for stock-owners, at non-profit prices.

Union Vale Dairy

An average of 65 cows in milk were maintained at Union Vale and yielded an average of 3,144 pints per animal. 172,633 pints were supplied to Government Institutions and some 200 regular customers and 31,781 pints were fed to calves.

The re-roofing of the cow-sheds was completed, so eliminating the serious risk of fire which the original thatch presented.

24 head of cattle, culled from the herds, were auctioned for slaughter.

4. *Produce Inspection and Laboratory Work*

Mr. J. F. G. Lionnet remained responsible for the inspection of produce prior to export and for the laboratory work of the Department, He was also concerned with the trials of insect parasites and predators and other entomological work, and was responsible for import permits and export certificates in connection with plants and plant parts.

(a) Inspection : As in previous years, the Produce Inspector stationed at the Custom Sheds was responsible for the inspection and sampling, when necessary, of copra, cinnamon bark, dry patchouli leaf and salt fish.

In general the quality of the produce deposited for export was of a good standard. There were the usual lots of copra and other produce which were rejected for too high a moisture content, improper preparation &c.

(b) Laboratory : The laboratory dealt with 892 samples of produce for export, fermented liquors and miscellaneous items, as compared with 765 and 703 in 1955 and 1956 respectively. The increase was due to the larger number of samples of fermented liquors submitted by the Excise Office. A large part of the work continued to be provided by the export of cinnamon leaf oil, 346 samples being taken for laboratory examination.

The following table records the results of examinations of fermented liquors in recent years. These samples are the result of seizures by the Police and may consis of fermented sugarcane juice, fermented coconut toddy or liquors known as "La Puree', which may have been fermented from a variety of substances.

	1953	*1954*	*1955*	*1956*	*1957*
No. of samples of fermented liquors examined	253	275	100	238	428
Percentage of Samples found to be "La Puree"	16.1	27.5	36.0	15.5	19.9

Germination tests of temperate-climate vegetable seeds, imported by the Department, were carried out prior to, and during, the period the seeds were on sale to the public.

Lime, cattle-dip, and miscellaneous samples were examined and reported on.

5. *Inspection of Plantations*

The two Inspectors (Mr. Gendron and Mr. Pool) spent much time on other Departmental duties. Inspection work is largely concerned with the granting of permits under the laws governing the felling of trees in river reserves, the lighting of fires, and the felling of breadfruit and jackfruit trees. Inspectors also carry out valuations of crops for the Labour & Welfare Officer in cases of dispute arising out of share-cropping and assist the police with coconut yield estimates &c. in cases of suspected illegal produce dealing. The last-mentioned duty occupied a considerable amount of time in 1957, both in the field and in police courts. The form in which estimations were communicated to the police was standardised. 2,037 permits to burn rubbish, make charcoal and lime, and split rocks with fire were issued. 4 valuations and 25 coconut yield estimates were undertaken.

6. *Investigations, Trials, Extension Work, and Services in the Interests of Producers*

Investigations & Trials

Coconuts : Progress of *Scolia ruficornis* (the parasite of the coconut pest *Oryctes monoceros*) was studied on North Island. A summary of references to control measures was obtained from the Commonwealth Bureau of Horticulture and Plantation Crops and correspondence was entered into with entomologists of the South Pacific Commission, as a result of which an attempt to increase the rate of multiplication of *Scolia ruficornis* on North Island was started. This involved the collection of large numbers of *Oryctes* larvae from fallen coconut trees (in which they are often well protected from the parasite) and their removal to trays containing rotted coconut wood where they were freely exposed to parasitation. The intention, if the trial is successful, is to leave some trays on North Island to increase stocks of the wasp there and move other trays to La Dique for hatching. The Imperial Bureau of Biological Control was consulted as to the utility of importing nematode parasites of *Oryctes* now under investigation by the South Pacific Commission and a supply was ordered. Though "estate hygiene" is so commonly stated to be the answer to rhinoceros beetle the prospects of achieving any sembance of "hygiene" among the tumbled masses of granite boulders and miscellaneous vegetation which constitute so much of the average Seychelles estate is so remote, and the Colony's record of successes with introduced parasites of other pests is so good, that a sustained effort to achieve biological control seems reasonable. The public were kept informed of this work.

A survey of the incidence of *Melittomma insulare* on St. Anne Island was carried out. 100% infestation in marshy areas and a lower, but, damaging, infestation elsewhere was found. The 100% recording and treatment on Government's Grand'Anse Estate is reported elsewhere. These latter records will provide useful information when island-wide control measures, on Mahe, by any method, are considered.

An area of coconuts on elevated low-water-table granitic sand at Grand'Anse Estate was half-circle manured with ash, farm-yard manure and spent cinnamon leaf and the crop-on-tree recorded.

Melittomma insulare Control, Praslin Pilot Scheme : All coconut palms on the island of Praslin (with the exception of those on one 5 acre holding where the owner could not be persuaded to allow and re. whom legal action is contemplated) were subjected to a first round of work by 31.1.58.

Work consisted of :

a. Numbering all palms of Age Group II, III, and IV and entering numbers in a register.

b. Examining registered palms and recording type and degree of infestation (i.e. "superficial" &c. — not by tunnel-count).

c. Recording estimated crop-on-tree likely to mature in 12 months.

d. Treatment (of treatable trees) by Brown's method, using paradichlorbenzene and tar and soil and husk vapour-seal.

e. Felling (and destruction by fire) of untreatable palms.

f. Recording of palms which fell as result of treatment, and of palms felled as in (e) above.

g. Re-inspection and re-treatment if necessary within approx. 6 months of (d) above.

By 31.1.58 (conclusion of first round of work) the following figures had been reached :

No. of trees treated · 58,585

No. of trees "believed free of *M. Insulare*" (at time of first-round inspection) : 18,426.

No. of trees felled : 13,473

No. of trees which fell after treatment : 504

Although, particularly on the drier land, a substantial reduction in numbers of infested trees has certainly been achieved (even allowing for fellings during first round and for the effect on statistics of varying numbers of Age Group I palms) an accurate assessment of the effect of the first round is needed. Such accurate assessment necessitates an entomologist working in the field. A period of work by such an entomologist should enable him (in consultation with the Specialist Coconut Officer expected — who could not possibly have had any previous expeaience with M. Insulare unless he had previously worked in Seychelles or N. Madagascar) to make recommendations regarding further *M. insulare* control work (either by improved application of Brown's method or by new methods).

With reference to the effect of treatment on yield all that can be said at this stage (although a great many "before and after" yield records have been examined) is that an increase (sometimes a very large increase) in crop results from treatment. Whether this increase is maintained seems very doubtful, in many cases, though where treatment arrests destruction of palms (or delays destruction) this is, in most cases, of advantage to the estate owner. That destruction of coconuts occupying land which could be used for home-consumption crops may be advanatageous to the Colony is arguable, despite the high yieding characteristic of coconut plantings on the wetter lands of this class.

Cinnamon : Following the preliminary despatches to the Colonial Products Laboratory (now Tropical Products Institute) in 1956 a further 40 lbs. of quills were made and despatched to the Institute for trade comment. From reports received it would appear that with attention to thinness of bark, tightness of rolling, diameter (not over ½"), external freedom from cracks knot marks &c., careful grading, and uniformity of length, it should be possible for quills from Seychelles cinnamon to compete with several Ceylon grades. The quills sent by the Department in 1957 sold in London at the rate of £400 per ton c.i.f. being said to be unacceptable to the "grocery trade" chiefly owing to being rolled somewhat more loosely than the better Ceylon grades. Funds for more extensive trials shipments in 1958 were obtained.

The Royal Botanic Gardens, Kew, reported that they had been successful in germinating part of a consignment of seed (obtained at the Department's request) from Ceylon strains favoured for quill-making and would despatch the plants when ready. Part of the same consignment of ssed was air-mailed to Seychelles via Kew but was, as feared, infertile on arrival.

Patchouli : The Malayan strain imported in 1955 was propagated and planted out at the Botanical Gardens and leaves were harvested and dried for obtaining information on yield and characteristics of the oil as compared with those of the strain grown in Seychelles for many years.

Pasture grass : The grass *Brachiaria brizantha* was introduced from E. Africa, seed of several strains being sown and that which showed vigour, leafiness, and a good habit under our conditions was selected for vegetative multiplication. Half an acre was planted on calcareous plateau and showed promise.

Citrus : It is satisfactory to be able to report that the Black fly pest of citrus is no longer a problem as the "Eddy Wasp" parasite introduced by the Department in 1955/56 had, before the end of 1957, brought about a perfect example of biological control throughout Mahe.

Garden Vegetables : No conclusive evidence of wilt-resistance was observed in Australian hybrid tomatoes under observation for this characteristic, but two varities were retained for further trial. A Puerto Rican sweet corn (improved USDA 34) developed for the wet tropics yielded palatable cobs of medium size while the temperate-climate favourites were disappointing. The Puerto Rican variety is recommended to those very few gardeners in the Colony who are interested in quality. The egg-plant varities Kopek and Motale from the Durban Botanical Gardens were under observation for resistance to wilt. A wild solanum which appears to be *Solanum indicum* is 100% resistant and was used equally well as a stock for both egg-plant and tomato.

Rice : The Agricultural Officer conducted a very successful small observation trial of the rice variety Radin Siak No. 2 which was chosen for further testing. The yield on 0.22 acre of bunded irrigated land was 311 kgs. of rice in husk. It is clear that with the close supervision which could be given by smallholders (and, as regards bird-scaring, by the children and elderly people of their families) rice is a practical proposition. The same area was planted to rice again for 1958 harvest, without manuring, and with the help of a small dressing of sulphate of ammonia the paddies were promising well at time of report. Planters were supplied with seed rice and one had an acre promising well at the year's end.

Robusta Coffee : An observation plot of approx. $\frac{1}{4}$ acre of Robusta coffee from seed sown by the Agricultural Officer in early 1955 came into bearing at the end of 1957. The strain is one which has been grown in the Botanical Gardens for a number of years. The plot was on bench-terraced land which had formerly been used for manioc. The plants were very heavily mulched, largely with banana trash, and were unshaded. Picking of the first crop started at the end of the year. Though the preparation of robusta in parchment is not normal practise in most countries this is being undertaken in the hope that by this method the objectionably "foxy" character of hulled dried cherry and hulled "buni", as normally prepared here, can be avoided. Green scale (with usual attendant ants) will require control. For the present the traditional paraffin/soap emulsion is being used as ant control on young trees is almost impossible. At the year's end there were indications that the quality of Seychelles robusta when prepared in parchment was vastly improved and this method of preparation will therefore be continued.

Vanilla : Very helpful trade reports were received as a result of the despatch of samples to London for comment and sale, followed by usual information from the Colonial Products Laboratory on fungistatic treat-

ments. It appears that vanilla buyers in Europe are almost unanimous in their preference for a soft black bean and are also chary about approving treatment of beans with any materials which could reduce the risk of mould. The public were kept informed. The Forester's trials of vanilla in young plantations were continued. The Forester submitted a paper on his work at a meeting of the Agricultural Board in which he indicated that plantations thinned to 900 trees per acre, and high-pruned, appeared to provide good conditions for vanilla. According to records in the Department it appears that the disease *Calospora vanillae*, to which the decline of vanilla-growing in Mahe was attributed by many, may, as is of course so often the case with plant diseases, have been more than the final death-blow to plants already weakened by over-crowding, neglect, the use of dead supports and, above all, lack of ample mulching.

Rats : No indications of any rapid increase in the number of the introduced Cape Barn Owls was observed.

Trials with the sodium salt of warfarin were very promising. The proprietary form "Sorexol" was applied in solution to dry, whole, maize grain in the ratio of 1 part by weight of solid "Sorexol" to 39 parts by weight of grain. After drying in the sun the treated grain was laid down (protected from rain and poultry) in infested areas. The method is almost entirely free from risk to humans or domestic animals. The necessary expenditure on materials for a sizeable campaign with these anti-coagulent rodenticides compares unfavourably with that for the older poisons and discourages use by the public. Proposals were made to the appropriate authority for a campaign with public funds to include, firstly, the township of Victoria (on the lines of that conducted in St. Helena) and it is hoped that such may be possible eventually.

Extension Work and Sundry Services in the interest of Producers

1. Veterinary treatment, drugs and Sundries : See "Veterinary work & Livestock"
2. Quarantine facilities for animals : See Veterinary work & Livestock"
3. Export certification for animals : ,, ,, ,, ,,
4. Stud bull services : ,, ,, ,, ,,
5. First cross cattle by action : ,, ,, ,, ,,
6. First cross & purebred poultry at auction & hatching eggs : ,, ,, ,, ,,
7. Tested vegetable seeds at non-profit prices : 817 packets of vegetable seeds in 9 varieties were sold to the public, the germination rate being checked frequently.
8. Planting material of food and cash crops free or at nominal prices : Over 33,000 cuttings of vanilla were supplied (free) to the public during the year from Praslin, Curieuse, and Mahe Crownlands. 1,444 yam cutting were sold at 5 cts. each. Sweet potato cuttings and banana suckers were supplied free, on request. Sunflower seed was imported and supplied free. Malayan Dwarf coconuts (not recommended for general planting) were supplied from trees in the Botanical Gardens.
9. Nursery stock (including forest trees) raised to order and sold at nominal prices : Sales from the Botanical Gardens (i.e. excluding free issue of cuttings) were solely of ornamentals. There was no demand for economic planting material.

10. Imported fertilisers, insecticldes, rat-poisons &c. sold at non-profit prices : Sulphate of ammonia, muriate of potash, gammexane caterpillar spray, paris green, metaldehyde, zinc phosphide rat poison, and paradichlorobenzene, were sold.

11. Laboratory analyses : See Agricultural Chemist's report.

12. Produce Inspection & quality certificates : as above

13. Inspection of plant imports & inspection and certification of plant exports : as above

14. Demonstrations : Parties of teachers in training were taken to re-afforestation areas. Cinnamon quill manufacture, composting, coconut manuring, and pest control measures were demonstrated at one-day Exhibition held at the Botanical Gardens in February and quill-manufacture was demonstrated at an exhibition later in the year. Films on mulching, milk production, and the formation of soils were obtained and supplied to the Seychelles College on loan and notes for class work on these subjects were written and supplied. Among the thousands of films and strips offered by official overseas sources extremely few are such as it would be useful to show in Seychelles. Market-gardening and terracing were demonstrated by Mr. Dubuisson and Mr. Lafontaine and the former planned the terracing of a sizeable area on R. C. Mission land above Victoria.

    Mr. Michaud gave several demonstrations of *Melittomma insulare* control. Mr. Morgan demonstrated livestock husbandry at Union Vale to teachers-in-training and others.

15. Advisory work : The Agricultural Officer (before his departure) visited all leasehold smallholdings on Crownland and other estates were visited, when occasion arose. A leaflet on rice-growing was issued, and items of information on vanilla, cinnamon, &c. were contributed to the Bulletin. Among the formidable volume of incoming and outgoing correspondence (totalling 4,901 papers, exclusive of vouchers, issue and receipt notes, and most internal memoranda) were a number concerned with advisory work.

16. Valuations and crop estimates : See "Plantation Inspection".

17. Distillation on demand : There was no demand.

18. Distribution of beneficial insects : The Eddy Wasp parasite of citrus black fly was distributed to those areas where it had not yet appeared.

SECTION III

Legislation

Ordinance No. 3 of 1957, an Ordinance to amend the Birds' Eggs Ordinance by increasing the power of the Governor in Executive Council to make regulations concerning the close season season and the places of collection of birds' eggs.

Ordinance No. 4 of 1957, an Ordinance to amend the Essential Oils (Exports and Marketing) Ordinance, by enabling the Governor in Execution Council to appoint one or more overseas selling agents, instead of the sole selling agent required by the principle ordinance, for essential oils.

Ordinance No. 22 of 1957, an Ordinance to amend the Turtles Ordinance by making it an offence to use any lights whatsoever for harpooning turtles, by enabling the Governor in Executive Council to make regulations to prohibit the catching, killing or harpooning of female turtles, by increasing the power of the Governor in Executive Council to make regulations concerning the close season and by empowering the Director of Agriculture to issue licences for catching and rearing young turtles.

SECTION IV

Staff and General

1. *Staff*

Mr. A. Jefferiss B.Sc. Hort. N.D.H. continued as Director, assisted until June by Mr. S. M. Savy B.Sc. Agric. (Agricultural Officer) and until October by Mr. E. F. Brewer (Forester). Mr. J. F. G. Lionnet Dip. Agric. Maur. (1st. Laboratory Assistant), Mr. D. Morgan (Stock Inspector), Mr. A. Gendron, Mr. John Dookly, Mr. E. Pool and Mr. J. Laye-Sion (Clerical) continued in supervisory positions.

An approved post of Settlement Officer was unfilled during the year.

2. *General*

Meetings of the Agricultural Board were held on 2 occasions during the year.

It remains only to thank all those who gave so unsparingly of their help on many occasions and to thank the depleted staff of the Department for their cheerful and willing labours during a year when shortage of technical officers became quite intolerably acute.

A. JEFFERISS,
Director of Agriculture.

This report was printed after the departure on overseas leave, prior to promotion as Principal Agricultural Officer, Northern Nigeria, of the Director, Mr. A. Jefferiss, under the supervision of the Ag. Director Mr. G. Lionnet.

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